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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,977	06/26/2003	Taku Hirasawa	5077-000171	6438
27572	7590	08/25/2004	EXAMINER	
HARNES, DICKEY & PIERCE, P.L.C.			PHAM, HAI CHI	
P.O. BOX 828			ART UNIT	
BLOOMFIELD HILLS, MI 48303			PAPER NUMBER	
			2861	

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/606,977

Applicant(s)

HIRASAWA ET AL.

Examiner

Hai C Pham

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*Handwritten signature*

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-6 and 9 is/are rejected.
- 7) ☒ Claim(s) 2,7,8 and 10-18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 6/26/03 & 10/21/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3-4 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda et al. (U.S. 6,306,562) in view of Kamiya et al. (U.S. 3,664,860).

Ikeda et al. discloses an ink jet head and a process for producing the head, comprising liquid chambers (12) for housing liquid, a piezoelectric element (17) configured so that a plurality of layers including a piezoelectric layer, an electrode layer (not shown but inherently included) and a diaphragm layer (15) are laminated, the piezoelectric element being deformed to a laminating direction so that a capacity of the liquid chambers is reduced and discharging the liquid in the liquid chambers (col. 2, lines 28-47), and a liquid chamber member made of an electroless plating material provided on one side of the piezoelectric element in the laminating direction, the liquid chamber member having liquid chamber holes for composing the liquid chambers

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opened on a side of the piezoelectric element and a surface opposite to the piezoelectric element (Ikeda et al. teaches the ink jet head being formed by laminating the different layers comprising the piezoelectric element 17 and the diaphragm 15 using the conventional method discussed in the background art section and the formation of the ink chambers 12 being provided with a partitioning member of a resist layer, to be used as a mold, and the coating of the base wall member of the ink chamber by a known method such as electroless plating).

Ikeda et al. fails to teach wherein at least a part on the surface of the piezoelectric element on the side of the liquid chamber member is composed of a nucleus forming assistance material contained layer containing a material for assisting nucleus forming for growth of plating at the time of forming the liquid chamber member on the surface by means of the electroless plating (claim 1), the material for assisting the nucleus forming is metal having catalysis with respect to reduction reaction of the plating material (claim 3), the plating material is Ni, and the metal having catalysis with respect to the reduction reaction of the plating material is at least one selected from a group of Ni, Fe and Pd (claim 4).

Kamiya et al. discloses an electroless nickel plating on a non-metallic material, which is prepared in a preliminary activating treatment step with a solution containing palladium ions acting as a catalytic nuclei in a nickel-reducing reaction indispensable for the practice of the subsequent electroless nickel plating (col. 2, lines 11-33).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the initial coating of the catalytic nuclei into

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the piezoelectric layer of Ikeda et al. as taught by Kamiya et al. The motivation for doing so would have been to induce the base material to be electrically conductive indispensable for the electroless plating.

The method claim 9 is deemed to be clearly anticipated by functions of the above structures.

4. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda et al. in view of Kamiya et al., as applied to claim 1 above, and further in view of Ozaki et al. (JP 57-188664).

Ikeda et al., as modified, discloses all the basic limitations of the claimed invention except for the material for assisting the nucleus forming being the metal having larger ionization tendency than the plating material, and the metal being at least one selected from a group of Ti, Mg, Al and Zn.

Ozaki et al. discloses an electroless plating method for forming nickel patterns on an insulating substrate by subjecting the substrate to a solution containing Fe or Zn of a larger ionization tendency so that the palladium is deposited on the pattern first, the substrate is then immersed in an electroless plating solution of Ni whereby the electroless plating of film Ni is formed on the palladium patterns.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to treat the device of Ikeda et al. with a preliminary solution of Fe or Zn before the electroless plating session as taught by Ozaki et al. The

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motivation for doing so would have been to induce the base material to be electrically conductive indispensable for the electroless plating.

***Allowable Subject Matter***

5. Claims 2, 7-8, 10-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: the primary reason for the indication of the allowability of claims 2 and 10 is the inclusion therein, in combination as currently claimed, of the limitation "wherein the nucleus forming assistance material contained layer is patterned correspondingly to a position of the liquid chamber member other than the liquid chamber holes" or "the side wall forming step of forming a side wall of the liquid chamber holes on the liquid chamber member on a portion on the surface of the laminate opposite to the substrate where the molds do not exist by means of electroless plating", which is not found taught the prior art of record considered alone or in combination.

The primary reason for the indication of the allowability of claims 7 and 17 is the inclusion therein, in combination as currently claimed, of the limitation "the entire surface of the piezoelectric element on the side of the liquid chamber member is composed of the nucleus forming assistance material contained layer", which is not found taught the prior art of record considered alone or in combination.

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Claims 8, 11-16 and 18 are allowable because they are directly/indirectly dependent from claims 7, 10 and 17 above.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



HAI PHAM  
PRIMARY EXAMINER

August 10, 2004